CLAIMS

1. Method for dynamic determination of time constants to be used in a detection of the signal level of an input signal of unknown level in an electric circuit, comprising the following steps:
   - feed the input signal through an auxiliary level detection means that is reacting faster to changes in the input sound signal level than the detection of the signal level as a whole,
   - feed either the input signal or the output of the auxiliary level detection means through a guided level detection means, which is arranged with a guided time constant, and where the guided level detection means outputs an estimate of the level of the input signal,
   - analyze the outputs of the auxiliary and the guided level detector means,
   - determine the time constant of the guided level detection means based on this analysis.

2. Method as claimed in claim 1, where the time constant of the auxiliary level detector is set to a fixed value that is substantially smaller than the time constant of the level detector as a whole.

3. Method as claimed in claim 1 or claim 2, where the analysis of the outputs of the auxiliary and the guided level detector means comprises the following steps:
   - convert the amplitude estimate of both level detectors to a level estimate on a dB scale
   - determine the difference between the level of the auxiliary level detector and the level of the guided level detector,
   - determine the time constant of the guided level detector as a function of this level difference.

4. Method as claimed in claim 3, where the function that determines the time constant of the guided level detector outputs a time constant that is maximal at a zero differences between the outputs of the auxiliary level detector and the guided level

detector, and that is decreasing or constant for an increasing absolute value of the level difference.

5. Method for level detection, wherein a time constant as determined in one or more of the above claims is generated and us in the level detection.

6. Method for level detection as claimed in claim 5, wherein a traditional slow level estimator is used in parallel with the fast level detector to track the long term average level, whereby an offset value is subtracted this long term average level to define a noise offset level, and where the maximum of the noise offset level and the value from the fast level detector is output as the signal level.

7. Method for compressing an electric audio signal, which uses a method for level detection as defined in claim 5 or 6.

8. Hearing aid wherein a method for compression as defined in claim 6 is used.